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In *Insect Life* for October, 1891, Mr. D. W. Coquillett, writing from Los Angeles, Cal., under date of June 8, 1891, says: "All of the authors which I have been able to consult upon the habits of Histeridæ (Packard, Harris, Le Baron, and Horn) state that these insects live in excrements, in decayed animal or vegetable matter, beneath the bark of trees, in ants' nests, and so on, but none of them even so much as hint at their predaceous habits. A few weeks ago I saw an adult *Hister sexstriatus* Lec. attack a nearly full grown larva of *Agrotis ypsilon* Rott., seizing it with its jaws as a cat would a rat and holding on despite the attempts of the cut-worm to escape. This was late in the afternoon of a cloudy day, and as my time was limited, I placed both specimens in my cyanide bottle, where the unequal combat soon terminated."

After an examination of the short-legged Histers one is inclined to the opinion that they stand far greater chance of catching fly larvæ in manure, for instance, than the more active caterpillars of Lepidoptera, and perhaps this accounts for the few observations that have been recorded on the subject.

In conclusion I wish to thank both Mr. Schaeffer and Mr. Leng for passing upon my *Hister interruptus*, and Dr. Dyar for examining the caterpillar.

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## Class I, HEXAPODA.

### Order IV, DIPTERA.

# THE LIFE HISTORY OF CULEX VARIPALPUS COQUILLET.

BY HARRISON G. DYAR, A.M., PH.D.,

WASHINGTON, D. C.

(PLATE III.)

As previously reported (Proc. Ent. Soc. Wash., VI, 39, 1904), I found this mosquito in eastern British Columbia. It was described from Arizona, so the range seems to be up the Western slope of the Rocky Mountain chain. It is a single brooded species, most nearly allied to *C. atropalpus* Coq. The eggs are laid scattered, singly, adhering to objects at the side of or under the water, but not definitely

attached as are those of *C. atropalpus*. They hibernate either dry or wet according to the condition of the environment. Immediately on the thawing of the ice in spring many of the eggs hatch, but others hatch later and irregularly so, some not developing for a month or more after the first ones. Consequently larvæ of various sizes occur in the same position till late in the season. The growth of the larvæ is slow. Their long anal processes supplied with tracheæ enable them to remain long under the water and, when disturbed, they will wriggle at the bottom of the dish with a continuous, rather slow, serpentine motion for longer than one has the patience to watch them. I have occasionally observed them in the breathing position. The food seems to consist of various decaying matters. Of insect remains they seem especially fond. A dead fly was introduced into the jar and, after it had become well moulded, the larvæ could be seen in a dense cluster about it, apparently biting and tugging and struggling to get at the object. I do not know exactly what sort of natural breeding places the larvæ frequent. My colony came from a tin vessel in an abandoned hut. From these I bred adults which deposited eggs that passed the winter and hatched the following spring as I have described.

The egg (Plate III, Fig. 1) is fusiform, one end more tapered than the other, one side flattened. It is very small, being .5 mm. long and .2 mm. wide. Deep black in color with peculiar sculpturing, reticulate in elongate ellipses like craters, all spicular granular shagreened.

In the first stage (Plate III, Fig. 2) the larvæ are small, colorless whitish, the harder parts scarcely at all infuscated. The head is rounded and rather long, flattened; normal, the antennæ moderate, uniform with a slight hair at the middle. Eyes small and weak, but transverse. The body has the usual flattened globose thorax and submoniliform abdominal segments. The prothoracic hairs are shorter than the others. Air tube about three times as long as wide, very slightly inflated, weakly infuscated at the tip; a weak pecten followed by a hair. Lateral comb of the eighth segment of a few spines (Plate III, Fig. 3) in a single row, weak and illy defined. Anal segment without perceptible plate, a dorsal posterior tuft and single hair on each side but no ventral brush. Anal processes not large but cylindrical, rounded and tracheate.

The second, third and fourth stages are essentially alike. The ventral brush is acquired (Plate III, Fig. 4), but it does not arise from

a barred area as usual and there is no perceptible dorsal plate. The head is slightly elongated, very pale brown, the antennæ rather short, weak, the small tuft in the middle (Plate III, Fig. 5). The prothoracic hairs are much reduced. Air tube moderate, about two and a half times as long as wide, weakly infuscated, the pecten teeth (Plate III, Fig. 6) followed by a single hair tuft at about the middle. Lateral comb of rather few spines (Plate III, Fig. 8) in an irregular double row, the single spines somewhat sole-shaped and fringed to the apex (Plate III, Fig. 9). Anal processes very long, cylindrical, sack-like, rounded at the end, rather opaquely whitish, with numerous elliptical spots in which the branches of the tracheæ seem to terminate. Dorsal tuft and ventral brush much alike in appearance; also a single lateral hair.

The pupa has the usual appearance.

#### EXPLANATION OF PLATE III.

- Fig. 1. Egg of *Culex varipalpus* Coq.
- Fig. 2. Stage I of the same.
- Fig. 3. Single tooth of the lateral comb of the eighth segment, stage I.
- Fig. 4. Diagram of the anal segment, stage II, showing dorsal and ventral tufts.
- Fig. 5. Stage IV.
- Fig. 6. Single tooth of the pecten of the air tube.
- Fig. 7. Labial plate.
- Fig. 8. Lateral comb of the eighth segment.
- Fig. 9. Single tooth of the lateral comb.

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### Class I, HEXAPODA.

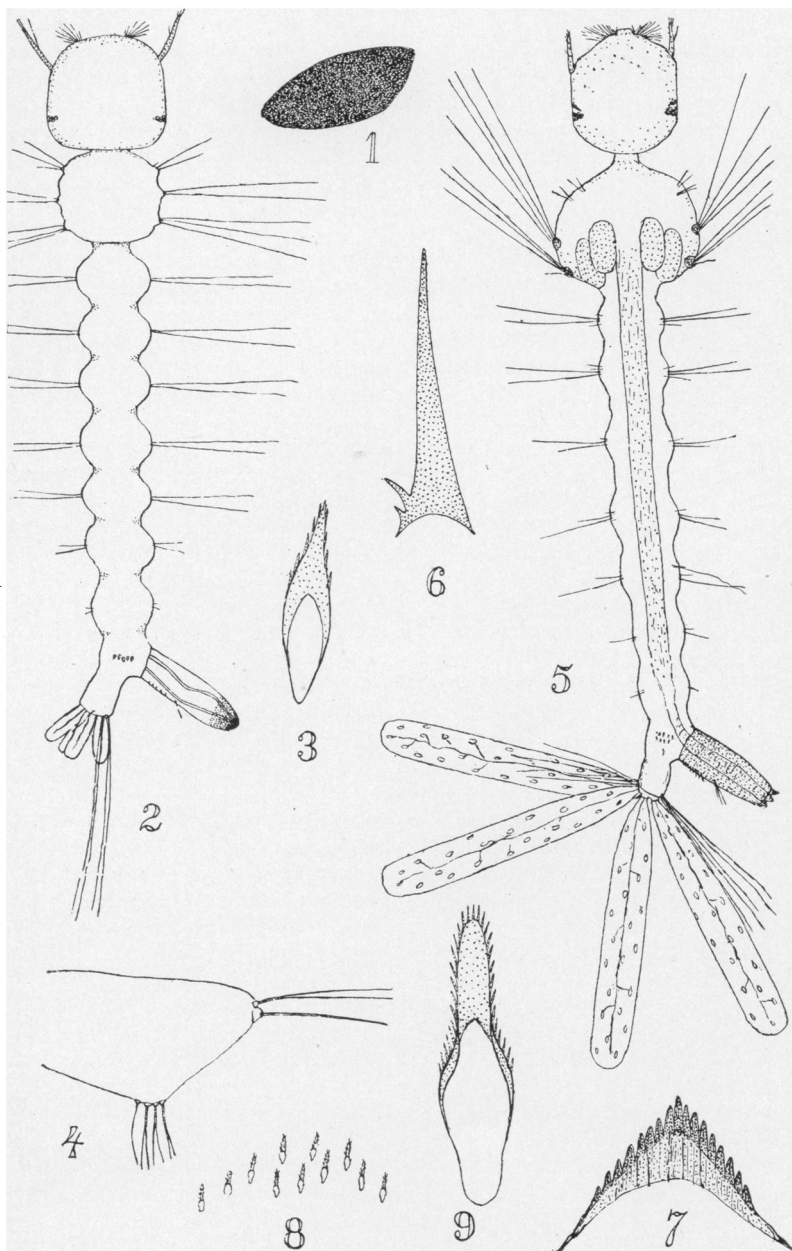
#### Order V, LEPIDOPTERA.

### SOUND PRODUCED BY A JAPANESE SATURNIAN CATERPILLAR.

BY A. S. PACKARD, M.D.,

PROVIDENCE, R. I.

While rearing from the eggs a number of the larva of the Japanese Saturnian moth, *Rhodia fugax*, Mr. Joutel observed, as he kindly informs me that the larva in its last stage "makes a squeaking noise by



Life History of *Culex varipalpus*, Coq.